

## CORRESPONDENCE

### Dual Use of E-Cigarettes and Cannabis Among Young People in America: A New Public Health Hurdle?

Dear Editor,

We commend the January 2022 issue of the *Journal of Studies on Alcohol and Drugs* (JSAD) for highlighting concerns related to marketing by the U.S. cannabis industry. As some of the authors point out (Carlini et al., 2022; Moreno et al., 2022), recent trends in cannabis companies' marketing practices have particularly concerning implications for youth appeal and use. Building on this topic, we wish to highlight a related and seemingly new trend in substance use: most individuals in the United States who use nicotine e-cigarettes ("e-cigarettes") also use cannabis. The numbers are alarming. National data on high school students indicate that in 2018, half of past-30-day e-cigarette users and 70% of frequent e-cigarette users (i.e., those using  $\geq 20$  of the past 30 days) had vaped cannabis at least once (Farsalinos et al., 2021). Studies of both adolescents and young adults indicate that dual use of e-cigarettes and cannabis is more common than use of e-cigarettes alone (Reboussin et al., 2021; Wills et al., 2021). Our own data collected this year among young people in Ohio show that 51% of past-30-day e-cigarette users (ages 15–24;  $N = 460$ ) are also past-30-day cannabis users. Among these dual users, 79% were using cannabis through multiple means, including smoking combustible cannabis, vaping tetrahydrocannabinol (THC) oil, vaping THC herbs, dabbing cannabis wax, and consuming cannabis edibles. More than 29% of these dual users were also using other tobacco products, such as cigarettes.

In any case of multiple substance use, the health implications become more complex. Dual or poly use can have additive and multiplicative health effects, which can be even more serious for young people who are still developing. Given the large numbers of adolescents and young adults using both e-cigarettes and cannabis, this dual use could have major public health implications that are only beginning to be understood (Buckner et al., 2021). In addition, emerging evidence indicates some sociodemographic differences in how dual use is expressed (Gilbert et al., 2021; Morean et al., 2021; Reboussin et al., 2021; Uddin et al., 2020), which may increase the heterogeneity of health consequences. Yet researchers' focus on single substances constrains how we can understand and address dual use. Funding agencies may

also need to consider expanding their focus on dual and poly use; a recent review of tobacco funding over the last decade (which included projects on cigarettes, e-cigarettes, smokeless tobacco, etc.) indicated that, of the 1,032 new National Institutes of Health (NIH)-funded tobacco projects, only 59 (5.7%) concerned tobacco use with other nontobacco products like cannabis or alcohol (Meissner et al., 2022).

Within nicotine and tobacco research, dual use creates its own scientific challenges as e-cigarette researchers are still working to identify the unique health impacts of this relatively new product. To this end, a study would, ideally, recruit e-cigarette users who have never used cannabis (or any other tobacco product) to isolate the effects of e-cigarettes. In reality, given the preponderance of dual use, obtaining such "clean" samples of e-cigarette users is proving to be arduous and resource intensive. Moreover, it raises the question of generalizability: if there are so few e-cigarette-only users, does studying only them capture the true public health impact of vaping?

A categorical approach to substance use, which only examines the use of e-cigarettes or cannabis in isolation, is problematic for a number of reasons, including (a) a lack of understanding of the additive and multiplicative impacts of dual use on the body, including cardiovascular, respiratory, and neurodevelopmental effects; (b) missed opportunities for cross-knowledge, as information gained about one substance could inform our understanding of other substances (e.g., identification of common risk and protective factors); and (c) a less efficient, and perhaps less effective, method for prevention and treatment, as it misses opportunities to address multiple substance use issues simultaneously (e.g., continued success in youth tobacco control may require prevention and intervention efforts that concurrently address cannabis, e-cigarette, and cigarette use; Weinberger et al., 2021).

The dual use of e-cigarettes and cannabis is a looming public health emergency that requires more attention. We do not want to wait 10, 20, or 30 years for the long-term health impacts of dual use to be defined. As underscored by Caputi (2022), Carlini et al. (2022), and Moreno et al. (2022) in JSAD's January issue, there have recently been substantive changes in the cannabis landscape. Such changes

include cannabis legalization in many states, increasing THC potency, commercialization of cannabis, and multinational tobacco and alcohol companies purchasing cannabis producers (Dewhirst, 2021; Roberts, 2020). With such changes, we may expect that the dual use issue will only become more urgent. Deliberate efforts should be made to address dual use now. We recommend the following:

There needs to be an integrated approach to funding substance use research. Within the NIH, funding for e-cigarette research is spread across numerous institutes (e.g., National Cancer Institute; National Institute on Aging; National Institute on Drug Abuse; National Institute of Dental and Craniofacial Research; National Heart, Lung, and Blood Institute; National Institute of Child Health and Human Development; National Institute of Environmental Health Sciences; and National Institute of General Medical Sciences), which hampers the coordination of research. Although each of these institutes may participate in calls for proposals to examine e-cigarette and cannabis use, establishing long-term agendas for dual/poly substance use will facilitate a more sustained approach. A designated NIH group on dual/poly-substance use research could help coordinate such an agenda as well as monitor and evaluate progress. Other funding bodies, such as the American Cancer Society, the American Heart Association, and the American Lung Association, can mount similar agendas to provide sustained opportunities that facilitate the examination of e-cigarette and cannabis use in the context of one another, rather than in isolation.

Researchers need to make their own efforts to include experts on different types of substances within their projects. Working collaboratively will allow us to productively share the knowledge built within individual fields. It will also help reduce the likelihood of unintended consequences, such as the cessation of one product promoting the uptake or increased use of another.

Although it is difficult in a burgeoning field, we need to strive toward standardization in measurement and terminology (McRobbie et al., 2021), including how constructs like “dual use” are defined. Research likewise needs to distinguish dual vaping of e-cigarettes and cannabis from dual use of e-cigarettes and cannabis (which can include the use of cannabis in other forms beyond vaping, such as smoking and edibles). Doing so will allow us to better compare and synthesize findings from individual studies.

Continued monitoring of the tobacco and cannabis industries is necessary. The tobacco industry has a long history of dubious marketing practices (e.g., see Yerger et al., 2007). E-cigarette companies have likewise marketed to youth and historically marginalized populations (Emory et al., 2019; Padon et al., 2017). The cannabis industry seems to be following suit. For example, both Carlini et al. (2022) and Moreno et al. (2022) document that cannabis businesses frequently violate marketing regulations with content appealing to minors. These for-profit industries cannot be left to

regulate themselves; rather, government regulation, including surveillance and penalties for violations, is necessary. Journal special issues (like JSAD’s January 2022 issue) or ongoing sections (like the “Industry Watch” section by the journal *Tobacco Control*) are also important mechanisms for disseminating information about concerning marketing trends.

Finally, it is crucial for substance use research to be grounded in a health equity perspective. The United States has a history of social injustice in relation to cannabis criminalization. As noted above, there are also sociodemographic differences in how dual use is expressed (Gilbert et al., 2021; Morean et al., 2021; Reboussin et al., 2021; Uddin et al., 2020). Public health practitioners and researchers must be mindful that approaches toward dual use should be conducted with a health equity focus. Further, as with any social science, dual use research will need to consider the multiple psychosocial and environmental factors influencing dual use behavior so that prevention and treatment approaches do not leave anyone behind.

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